

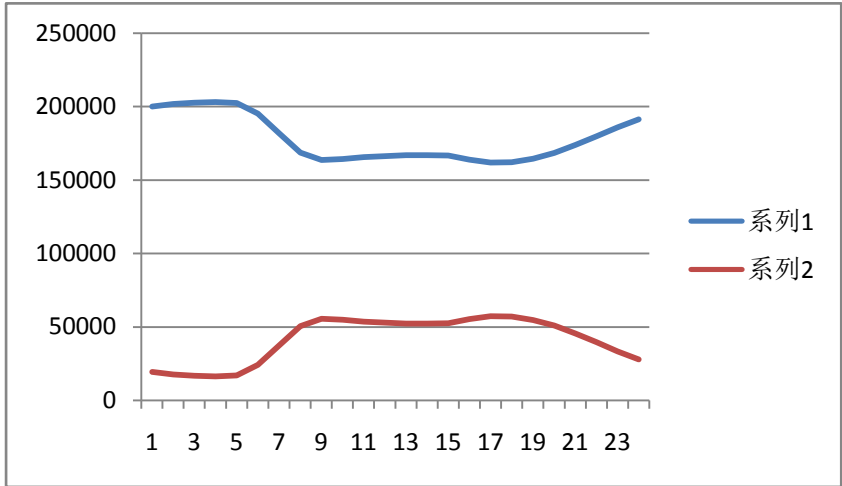
# Weekly Report (2014.06.23-2014.06.29)

GuoFangzhou

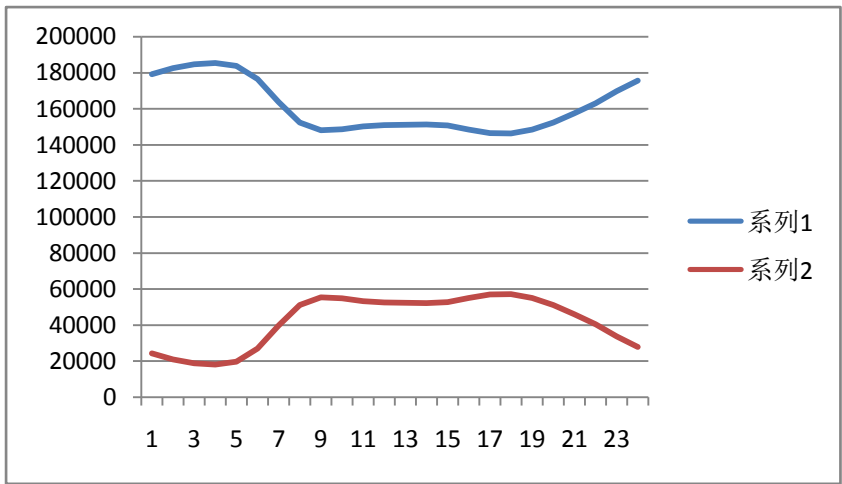
## 1. Mobile Data

This week I firstly refined the statistics of moving people and still people.

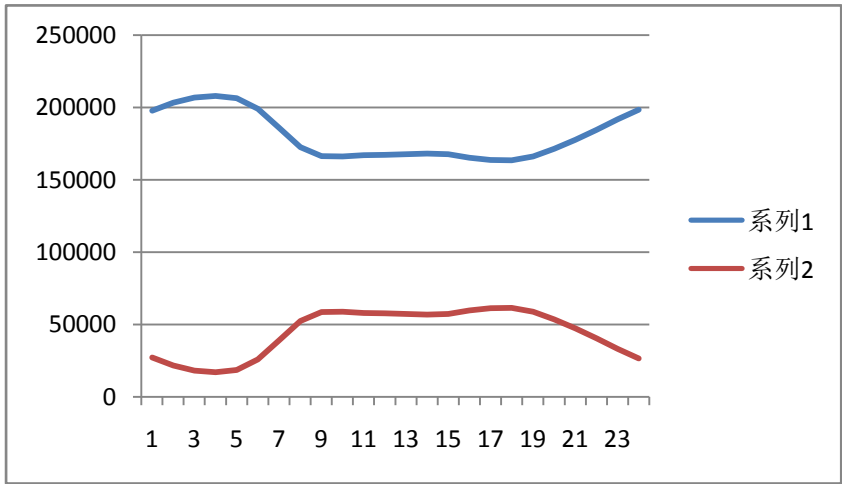
12.18, 2013



12.20, 2013



12.21, 2013

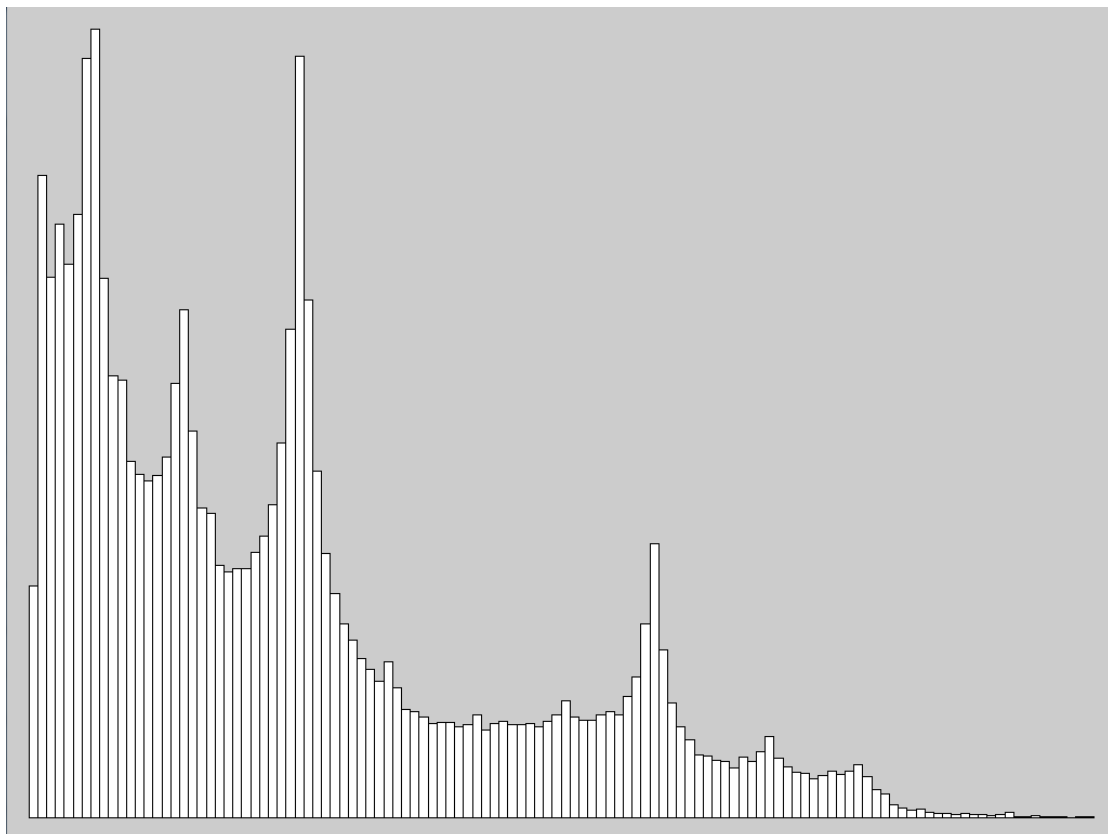


The trends of changes are similar on three days, which means air quality doesn't affect people's behaviors. One weird thing is that 12.21.2013 is Saturday, but the trend is still the same as weekdays. Therefore, more details like how people changes at a base and etc. still needed.

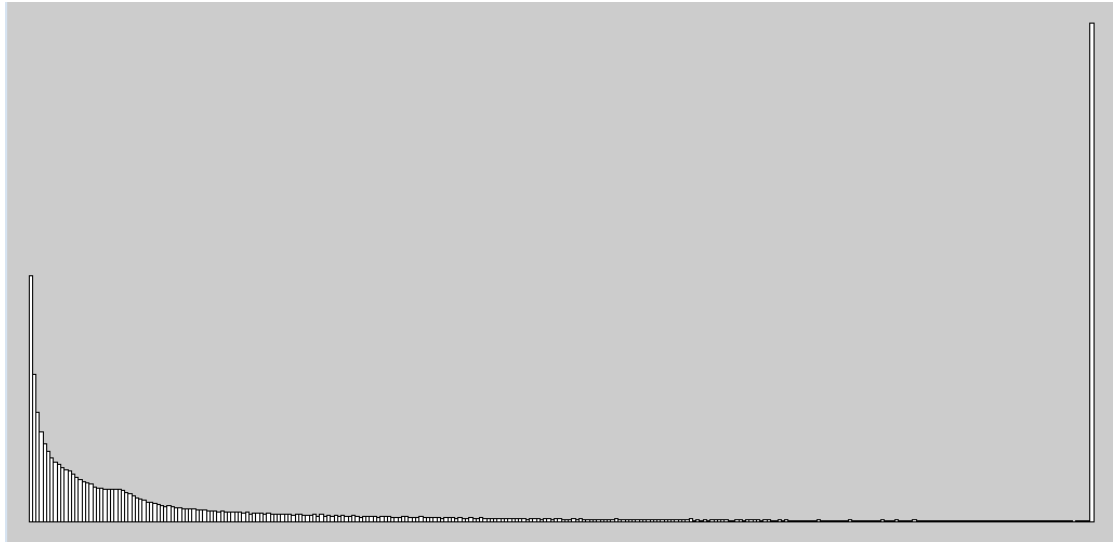
#### Ping-pong effect

In mobile phone data, there is a common effect called ping-pong effect, which is a phone seems jump among several bases when it is at the intersection of these bases. To eliminate this effect, we firstly applied a cluster algorithm, dbscan to all bases. But when two bases are far enough they can't be clustered together. To solve this problem, the feature of ping-pong sequence need to be take into consideration. I think that when ping-pong effect happens, there must be rapid switch between different bases. Therefore, if we check the time between two record and calculate the speed of the user, we can decide whether a ping-pong effect happened or not. I drew the histogram of time and speed.

The histogram of time: 0-120 seconds



The histogram of speed: 1-300( $\geq 300$ ) m/s



According to the histograms, I think when speed  $> 300\text{m/s}$ , a ping-pong effect happened.

Use visual analytics to make imprecise data more precise.

We have explored the mobile data for a long time and often find that things can't be done because of the imprecision of the data. I think this is something we can do, using visual analytics to complete the imprecise data.